Academic subject: Noncommutative algebra

Degree Class:		**Degree Course:** Mathematics	**Academic Year:** 2020/2021
		Kind of class: optional	**Year:** / **Period:**
			ECTS: divided into **ECTS lessons:** **ECTS exe/lab/tutor:**

Time management, hours, in–class study hours, out–of–class study hours
lesson: 45 exe/lab/tutor: 15 in–class study: out–of–class study:

Language: Italian/English	**Compulsory Attendance:** no		
Subject Teacher: Lucio Centrone	**Tel:** **e–mail:** lucio.centrone@uniba.it	**Office:** Department of Mathematics Room 1, Floor IV	**Office days and hours:**

Prerequisites:
Elements of group, ring, field theory. Vector spaces.

Educational objectives:
Recognize and classify finite dimensional algebras. Getting structural properties of algebras from the relations among their generators.

Expected learning outcomes (according to Dublin Descriptors)	**Knowledge and understanding:** **Applying knowledge and understanding:** **Making judgements:** **Communication:** **Lifelong learning skills:**

Course program
Jacobson Radical: Modules, rings and radicals, artinian rings, semisimple artinian rings;
Semisimple rings: density Theorem, classification of semisimple rings;
Commutativity theorems: Wedderburn Theorem and its generalizations;
Polynomial identities: definiton, examples, Kaplansky's Theorem, connection with the representation of a group.

Teaching methods:
Classical lectures

Auxiliary teaching:

Assessment methods:
An oral verification of the given topics.

Bibliography:
"I.N. Herstein, Noncommutative rings, The Carus Mathematical Monographs, The Mathematical Association of America (2005)",
"T.Y. Lam, A first course in Noncommutative rings, second Edition, Graduate Texts in Mathematics, Springer (2001)"